

Well head leak quantification Los Medanos Storage Facility

François Rongere

January 2019



Together, Building
a Better California



Testing Picarro Quantification System



Leak rate estimate with vehicle mounted instrument in July- Sept. 2016

Followed by verification using High-Flow Sampler



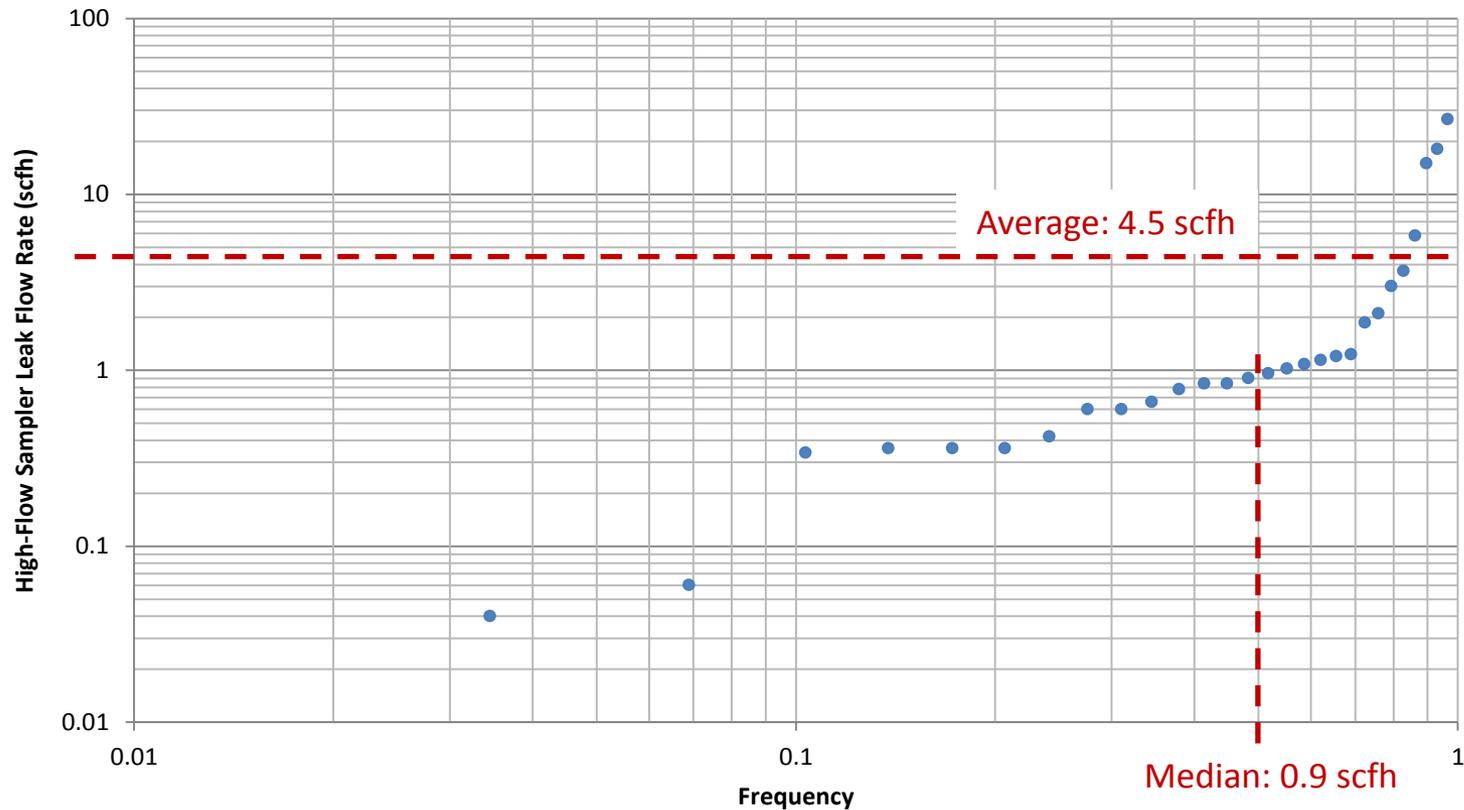


The four well pads of Los Medanos facility were surveyed several time.



Leak flow rate

- 29 High-Flow sampler measurements were used to set the Emission Factors of the well-head leaks.





Application to RY 2017 Annual Report

Description	Annual Emissions (Mscf)
McDonald Island - Surface Casing	1,100
Los Medanos - Surface Casing	300
Pleasant Creek - Surface Casing	115
McDonald Island - Wellhead Leaks	2,172
Los Medanos - Wellhead Leaks	567
Pleasant Creek - Wellhead Leaks	933
Total	5,188

Compared to Emissions calculated on population based overall Emission Factor as used by EPA.

Values are within 25%, we therefore used our method that will reward teams for leak detection and repair.

Storage facility	No. of Wells	Emission Factor ¹ (Mscf/yr-well)	Emissions Estimate (Mscf)
McDonald Island	87	41.8	3,636
Los Medanos	22	41.8	919
Pleasant Creek	7	41.8	293
		Total	4,848

¹. The wellhead leakage emission factor (Mscf/yr) is equal to 114.5 scf/day * 365 days/year / 1,000. The population-based emission factor of 114.5 scf/day-wellhead is per Table A-137 of the 2016 EPA Inventory of GHG Emissions and Sinks: 1990-2014.

Thank you!

François Rongere
fxrg@pge.com





Appendix

Data:

ID	Date measured	Los Medanos Wellhead	Hi-Flow (scfh)
1	7/21/2016	5B	0.78
2	7/21/2016	6B	0.6
3	7/21/2016	7C	1.08
4	7/21/2016	10C	2.1
5	7/27/2016	4B regulator	41.2
6	7/27/2016	5B	0.34
7	7/27/2016	6B	0.04
8	7/27/2016	7C	0.84
9	7/27/2016	10C	1.23
10	7/27/2016	15C	0.66
11	9/7/2016	3A	5.82
12	9/7/2016	5B	0.06
13	9/15/2016	3A	15
14	9/15/2016	4B regulator	3
15	9/15/2016	10C	1.86
16	9/15/2016	11C	0.36
17	9/15/2016	15C	0.84
18	9/15/2016	19D	0.6
19	9/29/2016	3A	26.7
20	9/29/2016	4B regulator	1.2
21	9/29/2016	7C	18.06
22	9/29/2016	10C	1.14
23	9/29/2016	11C	0.42
24	9/29/2016	15C	0.9
25	9/29/2016	19D	0.36
26	10/21/2016	3A	3.66
27	10/21/2016	4B regulator	1.02
28	10/21/2016	5B	0.96
29	10/21/2016	15C	0.36
		Average	4.52